

® **Ω** **LDM80**

® **Ω** **Signal-Powered,**  
® **Ω** **Fiber-Optic Modem**

® **Ω**



® **Ω** **OMEGA®**

*An OMEGA Technologies Company*

**Operator's Manual**



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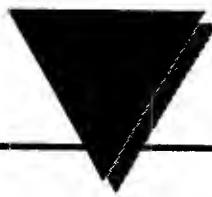
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It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply.  
OMEGA is constantly pursuing certification of its products to the European New Approach Directives.  
OMEGA will add the CE mark to every appropriate device upon certification.

## Unpacking Instructions

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Remove the Packing List and verify that you have received all equipment, including the following (quantities in parentheses):

- LDM80 Modem
- Operator's Manual.

If you have any questions about the shipment, please call the OMEGA Customer Service Department. When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

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**NOTE**

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The carrier will not honor damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

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From the Technical Library of \_\_\_\_\_

# LDM80

## Signal-Powered, Fiber-Optic Modem

### Description

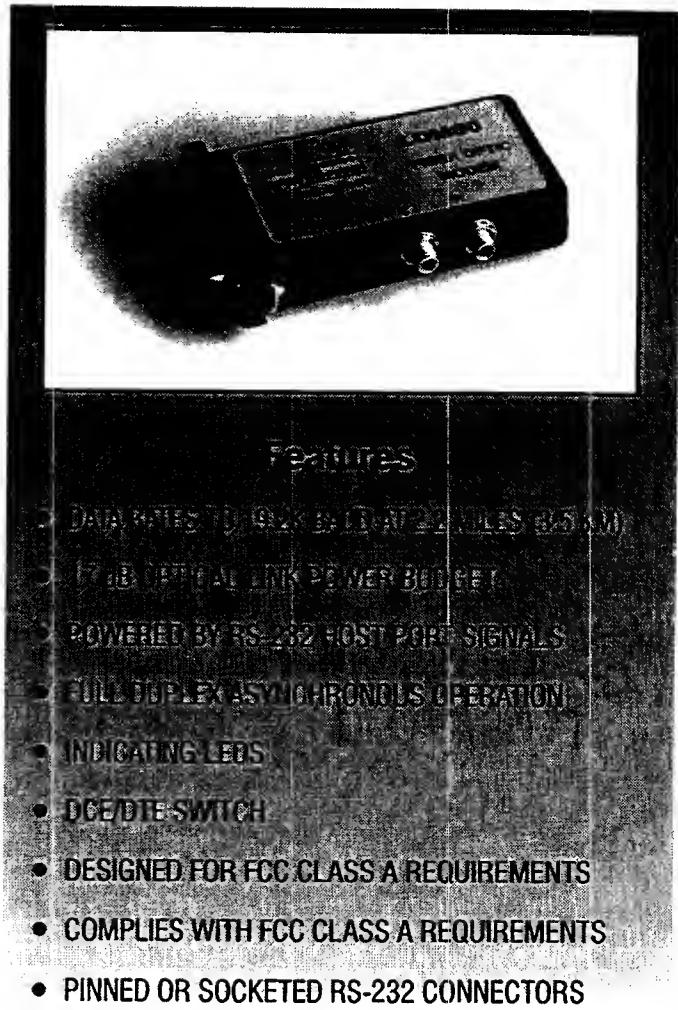
The LDM80 is a small, inexpensive fiber optic transmitter/receiver completely powered by the host RS-232 port. The enclosure for the LDM80 is a conductive shell that greatly reduces RF radiation and susceptibility. The rugged metal enclosure is small enough to mount on the back panel of typical computer equipment saving valuable desk and floor space. A pair of these units allows most RS-232C cable links to be replaced and extended with a duplex fiber optic cable. The normal 50-foot RS-232 limit may be extended to 2.2 miles (3.5 km). Fiber optic data communications provide complete EMI/RFI rejection, isolation, elimination of ground loops, and reduced error rates. Data security is enhanced by almost nonexistent electromagnetic emissions. The RS-232 connection is through male or female EIA 25-pin connectors. The fiber optic connection is either through SMA (905) or ST connectors.

The LDM80 is equivalent to a 3-wire, full duplex, RS-232 circuit. Handshake signals are locally connected as in Figure 1. Indicating LEDs come on during a "SPACE" on transmit or receive data. A TD/RD reversing DIP switch is provided for connection to DTE (Data Terminal Equipment) or DCE (Data Communication Equipment) ports.

### Specifications

Model		
LDM80		
Baud Rate Range		
0 - 19.2K		
Distance: Over Baud Rate Range		
Fiber Core Diameter ( $\mu\text{m}$ )	Max. Cable Length (km)	Loss Budget (dB)
100 (glass)	3.5	17
50 (glass)	2.5	9
62.5 (glass)	2.0	11
85 (glass)	3.5	16
200 (glass)	3.5	23
1000 (plastic)	30 meters	32
Channel Lines <sup>(1)</sup>	TD, RD	
Control Lines <sup>(1)</sup>	RTS, CTS, DSR, DTR, RLSD	
Modes	Asynchronous 2-fiber full duplex, 1-fiber simplex	
Optical Transmitter	850 nm wavelength	
Output from 1 m cable	-26 dB typ, -27dB min, -18 dB max	
Optical Receiver Power Input for 4 $\mu\text{s}$ Pulse Distortion	-44 dB min	
Optical Connectors	ST, SMA (905) Compatible	

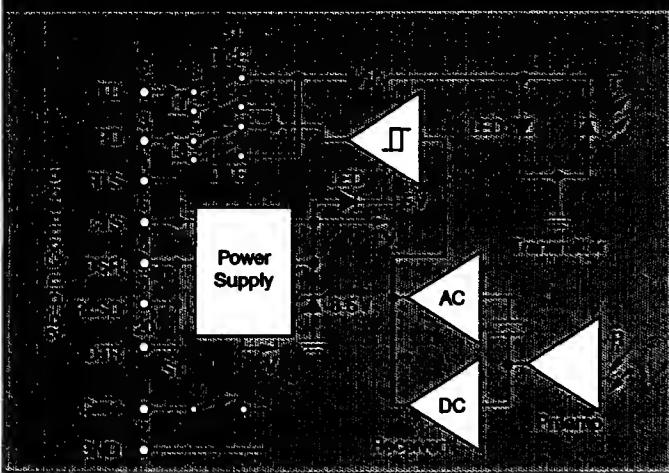
Notes: (1) TD = Transmit Data, RD = Receive Data, RTS = Request To Send, CTS = Clear To Send, DTR = Data Terminal Ready, DSR = Data Set Ready, RLSD = Received Line Signal Detect.



Model	
LDM80	
RS-232 Output Voltage with 3k $\Omega$ Load	+5V logic 0, -5V logic 1
DCE/DTE Switch	One
Diagnostic LEDs	Two
Power:	+5.0 to +8.5 VDC, no current limit, 5 mA > +8.5 VDC, 10 mA current limit
Operating Environment non-condensing	-20°C to +70°C, 0 to 95% relative humidity,
Dimensions	3.51 in x 1.88 in x 0.729 in (89.2 mm x 47.8 mm x 18.5 mm)
Weight	8.1 oz (230 g) max
MTBF <sup>(2)</sup>	>100,000 hrs

(2) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).

Figure 1. LDM80 Block Diagram



## Recommended Cables

The LDM80 optical transmitter may be used with a wide range of fiber sizes. Specifications are for 100/140  $\mu\text{m}$ . Other fiber sizes may be used with a resulting different cable loss budget.

### Pin Descriptions

Pin 1	Case	Case Ground
Pin 2	TD	Transmit Data
Pin 3	RD	Receive Data
Pin 4	RTS	Request To Send
Pin 5	CTS	Clear To Send
Pin 6	DSR	Data Set Ready
Pin 7	SIG GND	Signal Ground
Pin 8	RLSD	Receive Line Signal Detect
Pin 20	DTR	Data Terminal Ready

### Fiber Optic

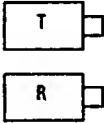


Figure 2. Typical LDM80 Installation

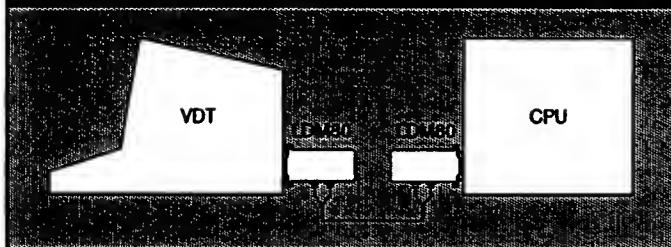
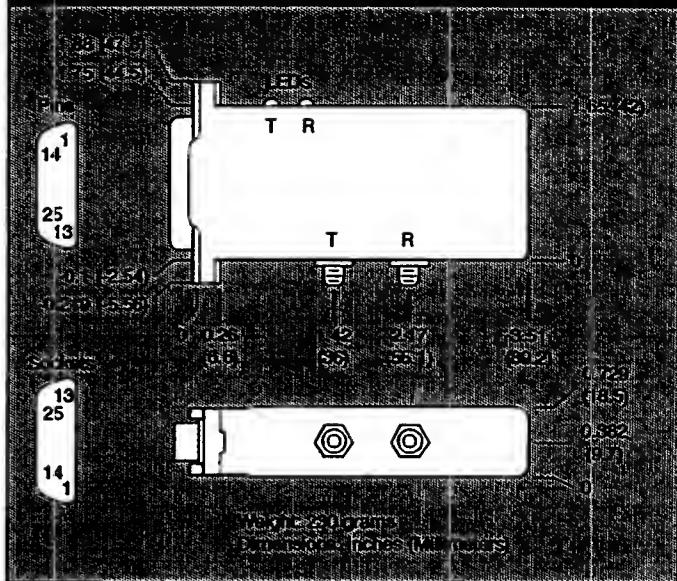


Figure 3. LDM80 Mechanical Drawing



## Installation

Power is supplied through a high RS-232 signal, normally current limited, applied to any of pins 4, 5, 6, 8 or 20. If the LDM80 is powered by a voltage source,  $V > +8.5$  VDC, the current must be limited to 10 mA. Voltage sources,  $V < +8.5$  VDC, will need no current limit. Voltage sources,  $V < +8.0$  VDC, will lower transmission distances. The minimum operating supply voltage for the LDM80 is +5.0 VDC and correct operation below this voltage is not guaranteed.

**WARNING!** *Voltage sources greater than +8.5 VDC without current limit will damage the LDM80!*

For installation check-out, it is recommended that a short fiber-optic cable be connected from transmit to receive on a locally connected device. See Figure 2 for a typical installation.

Models	
Model	Description
LDM80-P	Pinned RS-232 connector, SMA (905) fiber optic connector
LDM80-S	Socketed RS-232 connector, SMA (905) fiber optic connector
LDM80-P-025	Pinned RS-232 connector, ST fiber optic connector
LDM80-S-025	Socketed RS-232 connector, ST fiber optic connector

Note: (1) Specify length to the nearest meter. Example: LDM85CA2-0550 for 550 meters dual cable.



## WARRANTY/DISCLAIMER

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this **WARRANTY** is **VOID**, if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

**OMEGA is pleased to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.**

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2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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